

U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE TRANSMITTAL LETTER TO THE UNITED STATES DESIGNATED/ELECTED OFFICE (DO/EO/US) CONCERNING A FILING UNDER 35 U.S.C. 371		ATTORNEY'S DOCKET NUMBER 1454.1204 <div style="font-size: 1.5em; font-weight: bold;">10/019403</div>
INTERNATIONAL APPLICATION NO. PCT/DE00/02105 ✓	INTERNATIONAL FILING DATE 28 June 2000 ✓	PRIORITY DATE CLAIMED 29 June 1999 ✓
TITLE OF INVENTION METHOD FOR OPERATING AN ELECTRONIC DEVICE AND ELECTRONIC DEVICE		
APPLICANT(S) FOR DO/EO/US Nikolaus SCHALLER		
Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:		
<ol style="list-style-type: none"> 1. <input checked="" type="checkbox"/> This is a FIRST submission of items concerning a filing under 35 U.S.C. 371. 2. <input checked="" type="checkbox"/> This is an express request to immediately begin national examination procedures (35 U.S.C. 371(f)). 3. <input checked="" type="checkbox"/> The US has been elected by the expiration of 19 months from the priority date (PCT Article 31). 4. <input checked="" type="checkbox"/> A copy of the International Application as filed (35 U.S.C. 371(c)(2)) <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> is transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> has been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 5. <input checked="" type="checkbox"/> A translation of the International Application into English (35 U.S.C. 371(c)(2)). 6. <input type="checkbox"/> Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371(c)(3)) <ol style="list-style-type: none"> a. <input type="checkbox"/> are transmitted herewith (required only if not transmitted by the International Bureau). b. <input type="checkbox"/> have been transmitted by the International Bureau. c. <input type="checkbox"/> is not required, as the application was filed in the United States Receiving Office (RO/US). 7. <input type="checkbox"/> A translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)). 8. <input checked="" type="checkbox"/> An oath or declaration of the inventor (35 U.S.C. 371(c)(4)). 9. <input checked="" type="checkbox"/> A translation of the Annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371(c)(5)). 		
Items 10-15 below concern document(s) or information included:		
<ol style="list-style-type: none"> 10. <input checked="" type="checkbox"/> An Information Disclosure Statement Under 37 CFR 1.97 and 1.98. 11. <input checked="" type="checkbox"/> An assignment document for recording. Please mail the recorded assignment document to: <ol style="list-style-type: none"> a. <input checked="" type="checkbox"/> the person whose signature, name & address appears at the bottom of this document. b. <input type="checkbox"/> the following: 12. <input checked="" type="checkbox"/> A preliminary amendment. 13. <input checked="" type="checkbox"/> A substitute specification 14. <input type="checkbox"/> A change of power of attorney and/or address letter. 15. <input checked="" type="checkbox"/> Other items or information: 		
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☒ The U.S. National Fee (35 U.S.C. 371(c)(1)) and other fees as follows:

CLAIMS	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
TOTAL CLAIMS		9 -20=	0	x \$ 18.00	0.00
INDEPENDENT CLAIMS		2 -3=	0	x \$ 84.00	0.00
MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+\$280.00	0.00
BASIC NATIONAL FEE (37 CFR 1.492(a)(1)-(4):					
<input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO\$1,040 <input checked="" type="checkbox"/> International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO.....\$ 890 <input type="checkbox"/> International preliminary examination fee (37 C.F.R. 1.482) not paid to USPTO but international search fee (37 C.F.R. 1.445(a)(2)) paid to USPTO...\$ 740 <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) but all claims did not satisfy provision of PCT Article 33(1)-(4).....\$ 710 <input type="checkbox"/> International preliminary examination fee paid to USPTO (37 CFR 1.482) and all claims satisfied provisions of PCT Article 33(2) to (4)\$ 100					890.00
Surcharge of \$130 for furnishing the National fee or oath or declaration later than <input type="checkbox"/> 20 <input type="checkbox"/> 30 mos. from the earliest claimed priority date (37 CFR 1.482(e)).					0.00
TOTAL OF ABOVE CALCULATIONS					890.00
Reduction by 1/2 for filing by small entity, if applicable. Affidavit must be filed also. (Note 37 CFR 1.9, 1.27, 1.28.)					
SUBTOTAL					890.00
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TOTAL NATIONAL FEE					890.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)).					+ 40.00
TOTAL FEES ENCLOSED					930.00

- a. ☒ A check in the amount of \$ 930.00 to cover the above fees is enclosed.
 b. ☐ Please charge my Deposit Account No. 19-3935 in the Amount of \$ to cover the above fees. A duplicate copy of this sheet is enclosed.
 c. ☒ The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 19-3935. A duplicate copy of this sheet is enclosed.



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PATENT TRADEMARK OFFICE

SUBMITTED BY: STAAS & HALSEY LLP

Type Name	Richard A. Gollhofer	Reg. No.	31,106
Signature	<i>Richard A. Gollhofer</i>	Date	12/28/01

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the Application of:

Nikolaus SCHALLER

Serial No.:

Group Art Unit:

Confirmation No.

Filed: (concurrently)

Examiner:

For: ELECTRONIC DEVICE AND METHOD FOR OPERATING (as amended)

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents

Washington, D.C. 20231

Sir:

Before examination of the above-identified application, please amend the application as follows:

IN THE ABSTRACT:

Please DELETE the title and REPLACE with --ELECTRONIC DEVICE AND METHOD FOR OPERATING--.

IN THE ABSTRACT:

Please DELETE the Abstract in its entirety and substitute the attached new Abstract.

IN THE SPECIFICATION:

Please REPLACE the specification in its entirety with the Substitute Specification attached.

IN THE CLAIMS:

Please CANCEL claims 1-9 without prejudice or disclaimer in the underlying PCT application. Please also cancel, without prejudice or disclaimer, claims 1-9 in the annex to the International Preliminary Examination Report and ADD new claims in accordance with the following:

10. (NEW) A method for operating an electronic device, having an input unit, at least one output unit, and at least one supplementary or selection function activatable via the input unit, said method comprising:

- detecting each activation of a predetermined supplementary or selection function;
- evaluating a result of said detecting using a predetermined evaluation for determining at least one of infrequently used supplementary and selection functions; and
- outputting reference text corresponding to the at least one of infrequently used supplementary and selection functions based on said evaluating.

11. (NEW) The method as claimed in claim 10, wherein the electronic device is a telephone terminal with a display, and

- wherein said evaluating includes determining a frequency of activation of the at least one of infrequently used supplementary and selection functions in a predetermined period.

12. (NEW) The method as claimed in claim 11, wherein said evaluating includes determining a trend of the frequency of activation in the predetermined period.

13. (NEW) The method as claimed in claim 12, wherein said evaluating includes determining a period which has elapsed since a most recent activation of the at least one of infrequently used supplementary and selection functions.

14. (NEW) The method as claimed in claim 13, wherein said evaluating includes comparing a predetermined reference value with at least one of frequency of activation, the trend determined and the period determined.

15. (NEW) An electronic device, comprising:

- an input unit to activate at least one supplementary or selection function;
- an output unit;
- a supplementary function detection unit to detect each activation of a particular supplementary or selection function and to produce a detection output;
- a timer, coupled to said supplementary function detection unit, to determine a quantity characterizing a number of activations of the particular supplementary or selection function in a predetermined period;

an evaluation unit, coupled to said supplementary function detection unit and said timer, to produce an evaluation output;

a user information memory, coupled to said output unit, to store at least one advisory text for at least one infrequently used supplementary or selection function; and

a memory control unit, coupled to said evaluation unit and said user information memory, to address said user information memory for output of a corresponding advisory text for each infrequently used supplementary or selection function, based on the evaluation output.

16. (NEW) The device as claimed in claim 15, wherein the electronic device is a telephone terminal with a display, and

wherein said supplementary function detection unit includes

a counter to detect the number of activations of the particular supplementary or selection function; and

an arithmetic calculating unit, coupled to said counter and said timer, to determine a frequency of activation of the particular supplementary or selection function in the predetermined period.

17. (NEW) The device as claimed in claim 16, wherein said evaluation unit includes

a last activation memory to store a last activation time of the particular supplementary or selection function; and

a subtraction stage, connected to said last activation memory and to said timer, to determine a period which has elapsed since the last activation time.

18. (NEW) The device as claimed in claim 17, wherein said evaluation unit further includes:

a reference value memory to store a predetermined period; and

a comparator unit, having an input coupled to said reference value memory and an output coupled to said memory control unit, to compare the quantity characterizing the number of activations to the predetermined period and to output a control signal to said memory control unit.

REMARKS

This Preliminary Amendment is submitted to improve the form of the English translation as filed. It is respectfully requested that this Preliminary Amendment be entered in the above-referenced application.

In accordance with the foregoing, claims 1-9 have been canceled and claims 10-18 have been added. Thus, claims 10-18 are pending and are under consideration.

A substitute specification is also being filed herewith. The substitute specification is accompanied by a marked-up copy of the original specification.

If there are any questions regarding these matters, such questions can be addressed by telephone to the undersigned. Otherwise, an early action on the merits is respectfully solicited.

If there are any additional fees associated with filing of this Preliminary Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

Date: 12/28/01

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SUBSTITUTE SPECIFICATION

TITLE OF THE INVENTION

ELECTRONIC DEVICE AND METHOD FOR OPERATING

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is based on and hereby claims priority to German Patent Application No. 19929757.6 filed on June 29, 1999, the contents of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The invention relates to a method for operating an electronic device

2. Description of the Related Art

[0003] Electronic devices for commercial or private use – including, in particular, telephone terminals but also devices from the field of so-called consumer electronics, i.e. audio and video devices, cameras, organizers etc. - are nowadays increasingly provided with supplementary functions which go beyond the functionality necessary for the operation and are intended to offer advantages in serviceability to the user in order to increase the marketing chances. In many cases, the implementation of such supplementary functions is associated with considerable development and cost expenditure.

[0004] In the practical use of such electronic devices with supplementary functionality, however, little utilization of the supplementary functions can be registered in many cases so that the possible advantages of serviceability are not actually realized by the user. One of the causes of this – if not the most important one – can be seen in the fact that the supplementary functions in question are not known to the user at all or if at all, then only as catchphrases, i.e. without any real understanding of their operation and the useful effects that could be achieved by them. In this connection, the psychological effect is also of significance that sometime after the purchase of a new device, the interest in functions going beyond the basic functions clearly

diminishes and the supplementary functions not intensively used in the first phase of utilization are increasingly forgotten and are later no longer activated at all.

[0005] Especially in the case of modern telephones, both in line-connected feature telephones and in cordless and mobile telephones, a large number of supplementary functions is implemented in order to satisfy the requirements of sophisticated users. These are the following functions, for example:

- last number redialling
- internal calls
- electronic directory
- macros
- barring
- pocket money account
- office codes
- temporary PD/DTMF switching
- call groups
- MSN in ISDN
- CLIP functions
- inquiry, toggling etc.

[0006] Most of the users do not, however, know and use all or not even the most essential supplementary functions. Thus, there is great technical expenditure on functions which, in the final analysis, are little used and the possible advantages in serviceability are not realized.

[0007] As a rule, the supplementary functions are listed and explained in operating instructions of the device being discussed (for example of the telephone). Such operating instructions are in many cases of unsatisfactory structure and formulation and, therefore, are not or only superficially read by many users. In the daily use of the device, moreover, they are not continuously available to the user and, in conjunction with the abovementioned diminishing of interest in the functions of the device with increasing length of ownership, the operating

instructions are no longer being used at all after some time. Thus, the operating instructions are not a suitable means for moving the user to explore the functions of his device in detail.

SUMMARY OF THE INVENTION

[0008] The invention is based, therefore, on the object of specifying a method for operating an electronic device and an electronic device which, in particular, implements this method and by which a more efficient utilization of the functions of the device can be achieved.

[0009] The invention includes the fundamental technical concept of detecting the activation of functions offered and evaluating the result of the detection in the device. It also includes the concept of displaying or outputting references to functions not used or used only little, in dependence on the result of the evaluation.

[0010] The results of the detection are preferably evaluated as logging of the frequency of use, i.e. the number of activations within a particular period (calendar period or period related to the switch-on times of the device), and a counter connected to the operating element for the respective function, in conjunction with a timer, can be used for this purpose.

[0011] In a further advantageous embodiment, it is also possible to evaluate a trend of whether and to what extent the frequency of use of a particular function has changed within predetermined periods.

[0012] The reference to the little used functions is made in a simple and appropriate manner by pre-programmed short advisory texts which are displayed on an alphanumeric display of the device, which exists in any case, and/or also printed out with hard copy records and/or conveyed audibly. The advisory texts can contain, in particular, references to the operating instructions or other information sources. The advisory text output can also be selected in dependence on how the pattern of use evolves – in conjunction with the trend evaluation addressed above; for example, the user can be encouraged to use a function not previously used by a suitable text selection after the first attempts, or otherwise the advantages of the function in question can be selectively pointed out to him when a drop in frequency of use is registered.

[0013] As examples of application for linking certain evaluation results with regard to the supplementary functions of a modern telephone to references directed to the user, the following can be mentioned:

- no call number memory occupied → explanation of the call number memories
- no telephone directory entries → explanation of the telephone directory concept
- last number redialling never used → text: “Do you know that it is possible to dial the last number from the last number redialling memory? If no, please refer to page 7 of the operating instructions”
- mobile part never barred → reference to PIN input
- only one mobile part logged into one DECT base station → reference to additional mobile parts
- no internal call set up → reference that internal calls by other mobile parts are free of charge

[0014] The invention also provides for evaluating the frequency of use of selection functions and possibilities offered by the device, in addition to supplementary functions in the narrower sense. This can be, in particular, an evaluation of the frequency with which a particular call partner has been dialled from the electronic telephone directory. As a result of the evaluation, a particular advisory text can be generated here, too, which, for example, encourages a more frequent contacting of the corresponding subscriber or a reestablishment of contact after a prolonged period. In this sense, the invention also provides the possibility of implementing an “automatic relationship manager”.

[0015] The device constructed for carrying out the invention exhibits a supplementary or selection function detection device, an evaluation device for evaluating the frequency of activation of the supplementary or selection function(s), a user information memory and a display or output control device for initiating the output of the advisory texts mentioned. In a further development of the device aspect, the evaluation device can exhibit the counter mentioned above and timer and optionally other counters and/or arithmetic calculating units for providing results of the evaluation or trend information relating to different periods.

[0016] Moreover, advantages and suitable applications of the invention are obtained from the subclaims and the subsequent description of preferred exemplary embodiments, referring to the figures, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] These and other objects and advantages of the present invention will become more apparent and more readily appreciated from the following description of the preferred embodiments, taken in conjunction with the accompanying drawings of which:

Figure 1 is a functional block diagram of components of a feature telephone according to a first embodiment of the invention, and

Figure 2 is a functional block diagram of components of a car radio/CD changer combination according to a second embodiment of the invention .

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout.

[0019] Figure 1 shows a basic representation in the form of a functional block diagram of an system 100A, implemented as part of a feature telephone 100, according to a first embodiment of the invention. The feature telephone exhibits a microprocessor 101 which is associated in the usual manner with a main memory 101a, a program memory 101b and a timer 103. The telephone 100 has an input keypad 105 and a two-line alphanumeric display unit 107.

[0020] In the text which follows, the embodiment of the invention is explained with the example of two selected functions of the telephone 100, namely (a) with respect to the "last number redialling" function and (b) with respect to the frequency of contacting of a call partner entered in the electronic telephone directory.

[0021] The last number redialling key of the input keypad 105 is connected to a first counter 109 and the speed dialling input element specified for the call partner mentioned is connected to a second counter 111. The counters 109 and 111 count the number of activations of the "last number redialling" function and of the establishment of contact with the specific call partner. A FIFO memory 113 is also connected to the last-mentioned input element and is also connected via a further input to the timer 103 and in which the last (calendar) time of the establishment of contact with the call party mentioned is in each case stored. The output of the first counter 109 is connected to a first arithmetic calculating unit 115 and the output of the second counter 111 is connected to a second arithmetic calculating unit 117. The first and second calculating unit 115,

117 is in each case also connected to the timer 103 and calculates the frequency of activation of the “last number redialling” function and of the frequency with which the specified call party has been dialled within a predetermined period. This period is stored in the main memory 101a and the calculation process and also the sequences explained subsequently are executed in accordance with program sequences stored in the program memory 101b.

[0022] The output of the first calculating unit 115 is connected, on the one hand, to a first frequency comparator unit 119 and, on the other hand, to the input of a third arithmetic calculating unit (trend calculating unit) 121. The trend calculating unit 121 – like the first and second arithmetic calculating unit, too – is also connected to the timer 103 and is controlled by the microprocessor 101. As its name indicates, it is used for determining a trend of the frequency of use of the “last number redialling” function over predetermined successive periods. The output of the trend calculating unit 121 is connected to a first input of a trend comparator unit 123, the second input of which is connected to a trend reference value memory 125. Similarly, a first frequency reference value memory 127 is connected to a second input of the abovementioned first frequency comparator unit 119.

[0023] The output of the second arithmetic calculating unit 117, too, is connected to one input of a (second) frequency comparator unit 129, the second input of which is connected to a (second) frequency reference value memory 131. The output of the FIFO memory 113 is connected to a subtraction stage 133 which is also connected to the timer 103 and calculates the time difference between the current date and the date of the last speed dialling to the specific call party. The subtraction stage 133 is followed in the circuit by a time difference comparator unit 135, the second input of which is connected to a time difference reference value memory 137.

[0024] The comparator units 119, 123, 129 and 135 mentioned, in interaction with their associated reference value memories 125, 127, 131 and 137, are used for determining whether the respective input value (frequency of use, trend value of use and time difference value, respectively) exceeds or drops below a predetermined threshold value, and for outputting an output signal characterizing the result of the comparison. All of them are connected to inputs of a memory control unit 139 which is connected to a text memory (user information memory) 141 and – naturally again under control by the microprocessor 101 – calls up predetermined advisory texts stored in the various memory areas 141i of the text memory 141 in dependence

on these respective output signals and displays them on the display unit 107 of the telephone 100.

[0025] Thus, for example during the determination of a frequency of use of the "last number redialling" function dropping below a particular reference frequency and/or having a falling trend (and, in particular, naturally, when this function is not used at all), a reference to the advantages of this function is displayed in the display 107. If no connection with the specified call party has been established over a predetermined period (time difference reference value) and/or if the frequency of the establishment of contact with this party drops below a predetermined reference value, a specific reference to the suitability of re-establishing contact with this party (for example an important business partner) is in each case displayed on the display 107.

[0026] Similar to what has been described above, time difference, frequency or trend evaluations with respect to the use of other functions of the telephone 100 can be performed and specific advisory texts can be displayed in each case as a result of the evaluation. In the case of a telephone system with hard copy reports, it is also possible to print out the corresponding references and, finally, a text announcement can also be implemented (particularly suitable in the case of a telephone with answering machine function). For the embodiment in a feature telephone outlined in Fig. 1, the use of calendar periods (days/weeks/months) without referring to a device operating period or real period of use is appropriate. Naturally, this embodiment is also possible in the same way in a cordless telephone or mobile telephone.

[0027] Figure 2 shows the embodiment of the invention in another field than that of communications engineering with the example of a car radio/CD changer combination. Here, too, only the components which are of importance in conjunction with the explanation of the invention are shown; for the rest, a conventional device configuration is assumed. The functional components of this system largely correspond to those of the first embodiment and are designated to this extent with reference numbers derived from Fig. 1 and will not be explained again in the text which follows.

[0028] As examples of supplementary functions enhancing the value of use, (a) the "random" function (mixing the titles of a CD in accordance with the principle of randomness) and (b) selection of various CDs from the changer will be picked out here and an evaluation will be described which is simplified as compared with the evaluation modes of the first embodiment.

(Due to this fact and due to the circumstances that components having similar functions should also receive similar reference numbers as in Fig. 1, the reference numbers in Fig. 2 no longer follow one another without gaps.)

[0029] The car radio/CD changer combination 200 has a microprocessor 201, which is also used for controlling the program sequence, a main and program memory 201a, 201b and a timer 203 and naturally an operating keypad 205 and an alphanumeric display unit 207 in the usual manner and in principle analogously to the feature telephone according to Fig. 1. A first group of essential elements of system 200A for carrying out the invention are in this case a counter 209, connected to the operating keypad 205, for counting the operating processes for activating the "random" function, an arithmetic calculating unit 215, which follows the counter 209 and is also connected to the timer 203, for calculating the relative frequency of use of the said function, a frequency comparator unit 219 which is connected to the output of the calculating unit 215 and to the second input of which a frequency reference value memory 227 is connected.

[0030] A second group of essential functional components is formed by a FIFO memory 213, which is connected, on the one hand, to the input keypad 205 and, on the other hand, to the timer 203, for registering the last selection process in each case for a particular CD position in the changer part, a subtraction stage 233, connected to the output of the FIFO memory 213 and also to the timer 203, for determining the period which has elapsed since the last corresponding selection process, a time difference comparator unit 235 connected to the output of the subtraction stage 233 and a time difference reference value memory 237 connected to its second input. With regard to the remaining components of memory control unit 239 and text memory 241, reference is made to the above description for Fig. 1.

[0031] Thus, in the system described last, the user of the car radio/CD changer combination 200 is supplied with corresponding references via the display 207 when he has not or very rarely used the "random" function of his device within a predetermined operating period or when he has not selected a particular CD in the changer for a very long time. The latter reference can provide him with a stimulus for inserting another CD into this compartment which is more to his (possibly changed) taste.

[0032] The invention has been described in detail with particular reference to preferred embodiments thereof, but is not restricted to the examples described. It will be understood that

variations and modifications can be effected within the spirit and scope of the invention, in a multiplicity of modifications for other devices and applications.

ABSTRACT

ELECTRONIC DEVICE AND METHOD FOR OPERATING

An electronic device, particularly a telephone terminal, with an input device and a display or output device has at least one supplementary or selection function which can be activated via the input device. Each activation of a particular supplementary or selection function is detected and the result of the detection is subjected to a predetermined evaluation with a predetermined text being displayed or output in dependence on the result of the evaluation.

MARKED-UP COPY OF SUBSTITUTE SPECIFICATION

[Description] TITLE OF THE INVENTION

ELECTRONIC DEVICE AND METHOD FOR OPERATING
[AN ELECTRONIC DEVICE AND ELECTRONIC DEVICE]

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] This application is based on and hereby claims priority to German Patent Application No. 19929757.6 filed on June 29, 1999, the contents of which are hereby incorporated by reference.

BACKGROUND OF THE INVENTION

1. Field of the Invention

[0002] The invention relates to a method for operating an electronic device [according to the preamble of claim 1 and an electronic device according to the preamble of claim 6.]

2. Description of the Related Art

[0003] Electronic devices for commercial or private use – including, in particular, telephone terminals but also devices from the field of so-called consumer electronics, i.e. audio and video devices, cameras, organizers etc. - are nowadays increasingly provided with supplementary functions which go beyond the functionality necessary for the operation and are intended to offer advantages in serviceability to the user in order to increase the marketing chances. In many cases, the implementation of such supplementary functions is associated with considerable development and cost expenditure.

[0004] In the practical use of such electronic devices with supplementary functionality, however, little utilization of the supplementary functions can be registered in many cases so that the possible advantages of serviceability are not actually realized by the user. One of the causes of this – if not the most important one – can be seen in the fact that the supplementary functions in question are not known to the user at all or if at all, then only as catchphrases, i.e. without any real understanding of their operation and the useful effects that could be achieved by them. In this connection, the psychological effect is also of significance that sometime after the purchase of a new device, the interest in functions going beyond the basic functions clearly

diminishes and the supplementary functions not intensively used in the first phase of utilization are increasingly forgotten and are later no longer activated at all.

[0005] Especially in the case of modern telephones, both in line-connected feature telephones and in cordless and mobile telephones, a large number of supplementary functions is implemented in order to satisfy the requirements of sophisticated users. These are the following functions, for example:

- last number redialling
- internal calls
- electronic directory
- macros
- barring
- pocket money account
- office codes
- temporary PD/DTMF switching
- call groups
- MSN in ISDN
- CLIP functions
- inquiry, toggling etc.

[0006] Most of the users do not, however, know and use all or not even the most essential supplementary functions. Thus, there is great technical expenditure on functions which, in the final analysis, are little used and the possible advantages in serviceability are not realized.

[0007] As a rule, the supplementary functions are listed and explained in operating instructions of the device being discussed (for example of the telephone). Such operating instructions are in many cases of unsatisfactory structure and formulation and, therefore, are not or only superficially read by many users. In the daily use of the device, moreover, they are not continuously available to the user and, in conjunction with the abovementioned diminishing of interest in the functions of the device with increasing length of ownership, the operating

instructions are no longer being used at all after some time. Thus, the operating instructions are not a suitable means for moving the user to explore the functions of his device in detail.

SUMMARY OF THE INVENTION

[0008] The invention is based, therefore, on the object of specifying a method for operating an electronic device and an electronic device which, in particular, implements this method and by [means of] which a more efficient utilization of the functions of the device can be achieved. [This object is achieved by means of a method having the features of claim 1 with regard to the method aspect and by a device having the features of claim 6 with regard to its device aspect.]

[0009] The invention includes the fundamental technical concept of detecting the activation of functions offered and evaluating the result of the detection in the device. It also includes the concept of displaying or outputting references to functions not used or used only little, in dependence on the result of the evaluation.

[0010] The results of the detection are preferably evaluated as logging of the frequency of use, i.e. the number of activations within a particular period (calendar period or period related to the switch-on times of the device), and a counter connected to the operating element for the respective function, in conjunction with a timer, can be used for this purpose.

[0011] In a further advantageous embodiment, it is also possible to evaluate a trend of whether and to what extent the frequency of use of a particular function has changed within predetermined periods.

[0012] The reference to the little used functions is made in a simple and appropriate manner by [means of] pre-programmed short advisory texts which are displayed on an alphanumeric display of the device, which exists in any case, and/or also printed out with hard copy records and/or conveyed audibly. The advisory texts can contain, in particular, references to the operating instructions or other information sources. The advisory text output can also be selected in dependence on how the pattern of use evolves – in conjunction with the trend evaluation addressed above; for example, the user can be encouraged to use a function not previously used by a suitable text selection after the first attempts, or otherwise the advantages of the function in question can be selectively pointed out to him when a drop in frequency of use is registered.

[0013] As examples of application for linking certain evaluation results with regard to the supplementary functions of a modern telephone to references directed to the user, the following can be mentioned:

- no call number memory occupied → explanation of the call number memories
- no telephone directory entries → explanation of the telephone directory concept
- last number redialling never used → text: “Do you know that it is possible to dial the last number from the last number redialling memory? If no, please refer to page 7 of the operating instructions”
- mobile part never barred → reference to PIN input
- only one mobile part logged into one DECT base station → reference to additional mobile parts
- no internal call set up → reference that internal calls by other mobile parts are free of charge

[0014] The invention also provides for evaluating the frequency of use of selection functions and possibilities offered by the device, in addition to supplementary functions in the narrower sense. This can be, in particular, an evaluation of the frequency with which a particular call partner has been dialled from the electronic telephone directory. As a result of the evaluation, a particular advisory text can be generated here, too, which, for example, encourages a more frequent contacting of the corresponding subscriber or a reestablishment of contact after a prolonged period. In this sense, the invention also provides the possibility of implementing an “automatic relationship manager”.

[0015] The device constructed for carrying out the invention exhibits a supplementary or selection function detection device, an evaluation device for evaluating the frequency of activation of the supplementary or selection function(s), a user information memory and a display or output control device for initiating the output of the advisory texts mentioned. In a further development of the device aspect, the evaluation device can exhibit the counter mentioned above and timer and optionally other counters and/or arithmetic calculating units for providing results of the evaluation or trend information relating to different periods.

[0016] Moreover, advantages and suitable applications of the invention are obtained from the subclaims and the subsequent description of preferred exemplary embodiments, referring to the figures, in which:

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] **[****]** These and other objects and advantages of the present invention will become more apparent and more readily appreciated from the following description of the preferred embodiments, taken in conjunction with the accompanying drawings of which:

Figure 1 [shows] is a [schematic] functional block diagram of [the] components of a feature telephone according to a first embodiment[, which are essential in conjunction with the explanation] of the invention, and

Figure 2 [shows] is a [schematic] functional block diagram of [the] components of a car radio/CD changer combination according to a second embodiment of the invention[, which are essential for carrying out the invention].

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0018] Reference will now be made in detail to the preferred embodiments of the present invention, examples of which are illustrated in the accompanying drawings, wherein like reference numerals refer to like elements throughout.

[0019] Figure 1 shows a basic representation in the form of a functional block diagram of an [arrangement] system 100A, implemented as part of a feature telephone 100, according to a first embodiment of the invention. The feature telephone exhibits a microprocessor 101 which is associated in the usual manner with a main memory 101a, a program memory 101b and a timer 103. The telephone 100 has an input keypad 105 and a two-line alphanumeric display unit 107.

[0020] In the text which follows, the embodiment of the invention is explained with the example of two selected functions of the telephone 100, namely (a) with respect to the "last number redialling" function and (b) with respect to the frequency of contacting of a call partner entered in the electronic telephone directory.

[0021] The last number redialling key of the input keypad 105 is connected to a first counter 109 and the speed dialling input element specified for the call partner mentioned is connected to a second counter 111. The counters 109 and 111 count the number of activations of the "last number redialling" function and of the establishment of contact with the specific call partner. A FIFO memory 113 is also connected to the last-mentioned input element and is also connected via a further input to the timer 103 and in which the last (calendar) time of the establishment of contact with the call party mentioned is in each case stored. The output of the first counter 109

is connected to a first arithmetic calculating unit 115 and the output of the second counter 111 is connected to a second arithmetic calculating unit 117. The first and second calculating unit 115, 117 is in each case also connected to the timer 103 and calculates the frequency of activation of the "last number redialling" function and of the frequency with which the specified call party has been dialled within a predetermined period. This period is stored in the main memory 101a and the calculation process and also the sequences explained subsequently are executed in accordance with program sequences stored in the program memory 101b.

[0022] The output of the first calculating unit 115 is connected, on the one hand, to a first frequency comparator unit 119 and, on the other hand, to the input of a third arithmetic calculating unit (trend calculating unit) 121. The trend calculating unit 121 – like the first and second arithmetic calculating unit, too – is also connected to the timer 103 and is controlled by the microprocessor 101. As its name indicates, it is used for determining a trend of the frequency of use of the "last number redialling" function over predetermined successive periods. The output of the trend calculating unit 121 is connected to a first input of a trend comparator unit 123, the second input of which is connected to a trend reference value memory 125. Similarly, a first frequency reference value memory 127 is connected to a second input of the abovementioned first frequency comparator unit 119.

[0023] The output of the second arithmetic calculating unit 117, too, is connected to one input of a (second) frequency comparator unit 129, the second input of which is connected to a (second) frequency reference value memory 131. The output of the FIFO memory 113 is connected to a subtraction stage 133 which is also connected to the timer 103 and calculates the time difference between the current date and the date of the last speed dialling to the specific call party. The [substration] subtraction stage 133 is followed in the circuit by a time difference comparator unit 135, the second input of which is connected to a time difference reference value memory 137.

[0024] The comparator units 119, 123, 129 and 135 mentioned, in interaction with their associated reference value memories 125, 127, 131 and 137, are used for determining whether the respective input value (frequency of use, trend value of use and time difference value, respectively) exceeds or drops below a predetermined threshold value, and for outputting an output signal characterizing the result of the comparison. All of them are connected to inputs of a memory control unit 139 which is connected to a text memory (user information memory) 141 and – naturally again under control by the microprocessor 101 – calls up predetermined

advisory texts stored in the various memory areas 141i of the text memory 141 in dependence on these respective output signals and displays them on the display unit 107 of the telephone 100.

[0025] Thus, for example during the determination of a frequency of use of the “last number redialling” function dropping below a particular reference frequency and/or having a falling trend (and, in particular, naturally, when this function is not used at all), a reference to the advantages of this function is displayed in the display 107. If no connection with the specified call party has been established over a predetermined period (time difference reference value) and/or if the frequency of the establishment of contact with this party drops below a predetermined reference value, a specific reference to the suitability of re-establishing contact with this party (for example an important business partner) is in each case displayed on the display 107.

[0026] Similar to what has been described above, time difference, frequency or trend evaluations with respect to the use of other functions of the telephone 100 can be performed and specific advisory texts can be displayed in each case as a result of the evaluation. In the case of a telephone system with hard copy reports, it is also possible to print out the corresponding references and, finally, a text announcement can also be implemented (particularly suitable in the case of a telephone with answering machine function). For the embodiment in a feature telephone outlined in [figure] Fig. 1, the use of calendar periods (days/weeks/months) without referring to a device operating period or real period of use is appropriate. Naturally, this embodiment is also possible in the same way in a cordless telephone or mobile telephone.

[0027] Figure 2 shows the embodiment of the invention in another field than that of communications engineering with the example of a car radio/CD changer combination. Here, too, only the components which are of importance in conjunction with the explanation of the invention are shown; for the rest, a conventional device configuration is assumed. The functional components of this [arrangement] system largely correspond to those of the first embodiment and are designated to this extent with reference numbers derived from [figure] Fig. 1 and will not be explained again in the text which follows.

[0028] As examples of supplementary functions enhancing the value of use, (a) the “random” function (mixing the titles of a CD in accordance with the principle of randomness) and (b) selection of various CDs from the changer will be picked out here and an evaluation will be

described which is simplified as compared with the evaluation modes of the first embodiment. (Due to this fact and due to the circumstances that components having similar functions should also receive similar reference numbers as in [figure] Fig. 1, the reference numbers in [figure] Fig. 2 no longer follow one another without gaps.)

[0029] The car radio/CD changer combination 200 has a microprocessor 201, which is also used for controlling the program sequence, a main and program memory 201a, 201b and a timer 203 and naturally an operating keypad 205 and an alphanumeric display unit 207 in the usual manner and in principle analogously to the feature telephone according to [figure] Fig. 1. A first group of essential elements of [the arrangement] system 200A for carrying out the invention are in this case a counter 209, connected to the operating keypad 205, for counting the operating processes for activating the "random" function, an arithmetic calculating unit 215, which follows the counter 209 and is also connected to the timer 203, for calculating the relative frequency of use of the said function, a frequency comparator unit 219 which is connected to the output of the calculating unit 215 and to the second input of which a frequency reference value memory 227 is connected.

[0030] A second group of essential functional components is formed by a FIFO memory 213, which is connected, on the one hand, to the input keypad 205 and, on the other hand, to the timer 203, for registering the last selection process in each case for a particular CD position in the changer part, a subtraction stage 233, connected to the output of the FIFO memory 213 and also to the timer 203, for determining the period which has elapsed since the last corresponding selection process, a time difference comparator unit 235 connected to the output of the subtraction stage 233 and a time difference reference value memory 237 connected to its second input. With regard to the remaining components of memory control unit 239 and text memory 241, reference is made to the above description for [figure] Fig. 1.

[0031] Thus, in the [arrangement] system described last, the user of the car radio/CD changer combination 200 is supplied with corresponding references via the display 207 when he has not or very rarely used the "random" function of his device within a predetermined operating period or when he has not selected a particular CD in the changer for a very long time. The latter reference can provide him with a stimulus for inserting another CD into this compartment which is more to his (possibly changed) taste.

[0032] The [embodiment of the] invention has been described in detail with particular reference to preferred embodiments thereof, but is not restricted to the examples described, [but is also possible] It will be understood that variations and modifications can be effected within the spirit and scope of the invention, in a multiplicity of modifications for other devices and applications.

ABSTRACT

ELECTRONIC DEVICE AND METHOD FOR OPERATING

An electronic device, particularly a telephone terminal, with an input device and a display or output device has at least one supplementary or selection function which can be activated via the input device. Each activation of a particular supplementary or selection function is detected and the result of the detection is subjected to a predetermined evaluation with a predetermined text being displayed or output in dependence on the result of the evaluation.

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Description

Method for operating an electronic device and electronic device

- 5 The invention relates to a method for operating an electronic device according to the preamble of claim 1 and an electronic device according to the preamble of claim 6.

Electronic devices for commercial or private use - including, in particular, telephone terminals but also devices from the field of so-called consumer electronics, i.e. audio and video devices, cameras, organizers etc. - are nowadays increasingly provided with supplementary functions which go beyond the functionality necessary for the operation and are intended to offer advantages in serviceability to the user in order to increase the marketing chances. In many cases, the implementation of such supplementary functions is associated with considerable development and cost expenditure.

- 20 In the practical use of such electronic devices with supplementary functionality, however, little utilization of the supplementary functions can be registered in many cases so that the possible advantages of serviceability are not actually realized by the user. One of the causes of this - if not the most important one - can be seen in the fact that the supplementary functions in question are not known to the user at all or if at all, then only as catchphrases, i.e. without any real understanding of their operation and the useful effects that could be achieved by them. In this connection, the psychological effect is also of significance that sometime after the purchase of a new device, the interest in functions going beyond the basic functions clearly diminishes and the supplementary functions not intensively used in the first phase of utilization are increasingly forgotten and are later no longer activated at all.

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Especially in the case of modern telephones, both in line-connected feature telephones and in cordless and mobile telephones, a large number of supplementary functions is implemented in order to satisfy the requirements of sophisticated users. These are the following functions, for example:

- last number redialling
- internal calls
- electronic directory
- 10 - macros
- barring
- pocket money account
- office codes
- temporary PD/DTMF switching
- 15 - call groups
- MSN in ISDN
- CLIP functions
- inquiry, toggling etc.

20 Most of the users do not, however, know and use all or not even the most essential supplementary functions. Thus, there is great technical expenditure on functions which, in the final analysis, are little used and the possible advantages in serviceability are not realized.

25 As a rule, the supplementary functions are listed and explained in operating instructions of the device being discussed (for example of the telephone). Such operating instructions are in many cases of unsatisfactory structure and formulation and, therefore, are not or only superficially read by many users. In the daily use of
30 the device, moreover, they are not continuously available to the user and, in conjunction with the abovementioned diminishing of interest in the functions of the device with increasing length of ownership, the operating instructions are no longer

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being used at all after some time. Thus, the operating instructions are not a suitable means for moving the user to explore the functions of his device in detail.

5 From DE 42 43 563 A1, a device for operating a device is known in which control processes are triggered by operating input keys, the frequency of use being detected and the order of individual control procedures or individual input keys being changed in accordance with the frequency of their use so that the control
10 procedure used most frequently or, respectively, the control command used most frequently is at the beginning of the sequence.

From EP 0 808 049 A2, an operating section of an electrical device is known in which a frequency of functional sequences selected by
15 a user is detected and when a predetermined frequency is exceeded, function keys which are not yet occupied or are only rarely used are allocated frequently used functional sequences.

The invention is based, therefore, on the object of specifying a
20 method for operating an electronic device and an electronic device which, in particular, implements this method and by means of which a more efficient utilization of the functions of the device can be achieved.

25 This object is achieved by means of a method having the features of claim 1 with regard to the method aspect and by a device having the features of claim 6 with regard to its device aspect.

The invention includes the fundamental technical concept of
30 detecting the activation of functions offered and evaluating the result of the detection in the device. It also includes the concept

of displaying or outputting references to functions not used or used only little, in dependence on the result of the evaluation.

5 The results of the detection are preferably evaluated as logging of the frequency of use, i.e. the number of activations within a particular period (calendar period or period related to the switch-on times of the device), and a counter connected to the operating element for the respective function, in conjunction with a timer, can be used for this purpose.

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In a further advantageous embodiment, it is also possible to evaluate a trend of whether and to what extent the frequency of use of a particular function has changed within predetermined periods.

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The reference to the little used functions is made in a simple and appropriate manner by means of pre-programmed short advisory texts which are displayed on an alphanumeric display of the device, which exists in any case, and/or also printed out with hard copy records and/or conveyed audibly. The advisory texts can contain, in particular, references to the operating instructions or other information sources. The advisory text output can also be selected in dependence on how the pattern of use evolves - in conjunction with the trend evaluation addressed above; for example, the user can be encouraged to use a function not previously used by a suitable text selection after the first attempts, or otherwise the advantages of the function in question can be selectively pointed out to him when a drop in frequency of use is registered.

As examples of application for linking certain evaluation results with regard to the supplementary functions of a modern telephone to references directed to the user, the following can be mentioned:

- no call number memory occupied → explanation of the call number memories
- no telephone directory entries → explanation of the telephone directory concept
- last number redialling never used → text: "Do you know that it is possible to dial the last number from the last number redialling memory? If no, please refer to page 7 of the operating instructions"
- mobile part never barred → reference to PIN input
- only one mobile part logged into one DECT base station → reference to additional mobile parts
- no internal call set up → reference that internal calls by other mobile parts are free of charge

The invention also provides for evaluating the frequency of use of selection functions and possibilities offered by the device, in addition to supplementary functions in the narrower sense. This can be, in particular, an evaluation of the frequency with which a particular call partner has been dialled from the electronic telephone directory. As a result of the evaluation, a particular advisory text can be generated here, too, which, for example, encourages a more frequent contacting of the corresponding subscriber or a reestablishment of contact after a prolonged period. In this sense, the invention also provides the possibility of implementing an "automatic relationship manager".

The device constructed for carrying out the invention exhibits a supplementary or selection function detection device, an evaluation device for evaluating the frequency of activation of the supplementary or selection function(s), a user information memory and a display or output control device for initiating the output of the advisory texts mentioned. In a further development of the device aspect, the evaluation device can exhibit the counter mentioned above and timer and optionally other counters and/or arithmetic calculating units for providing results of the evaluation or trend information relating to different periods.

Moreover, advantages and suitable applications of the invention are obtained from the subclaims and the subsequent description of preferred exemplary embodiments, referring to the figures, in which:

Figure 1 shows a schematic functional block diagram of the components of a feature telephone according to a first embodiment, which are essential in conjunction with the explanation of the invention, and

Figure 2 shows a schematic functional block diagram of the components of a car radio/CD changer combination according to a second embodiment of the invention, which are essential for carrying out the invention.

5

Figure 1 shows a basic representation in the form of a functional block diagram of an arrangement 100A, implemented as part of a feature telephone 100, according to a first embodiment of the invention. The feature telephone exhibits a microprocessor 101
10 which is associated in the usual manner with a main memory 101a, a program memory 101b and a timer 103. The telephone 100 has an input keypad 105 and a two-line alphanumeric display unit 107.

In the text which follows, the embodiment of the invention is
15 explained with the example of two selected functions of the telephone 100, namely (a) with respect to the "last number redialling" function and (b) with respect to the frequency of contacting of a call partner entered in the electronic telephone directory.

20

The last number redialling key of the input keypad 105 is connected to a first counter 109 and the speed dialling input element specified for the call partner mentioned is connected to a second counter 111. The counters 109 and 111 count the number of
25 activations of the "last number redialling" function and of the establishment of contact with the specific call partner. A FIFO memory 113 is also connected to the last-mentioned input element and is also connected via a further input to the timer 103 and in which the last (calendar) time of the establishment of contact
30 with the call party mentioned is in each case stored. The output of the first counter 109 is connected to a first arithmetic calculating unit 115 and the output of the second counter 111 is connected to a second arithmetic calculating unit 117. The first and second calculating unit 115, 117 is in each case also

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connected to the timer 103 and calculates the frequency of activation of the "last number redialling" function and of the frequency with which the specified call party has been dialled within a predetermined period. This period is stored in the main
5 memory 101a and the calculation process and also the sequences explained subsequently are executed in accordance with program sequences stored in the program memory 101b.

The output of the first calculating unit 115 is connected, on the
10 one hand, to a first frequency comparator unit 119 and, on the other hand, to the input of a third arithmetic calculating unit (trend calculating unit) 121. The trend calculating unit 121 - like the first and second arithmetic calculating unit, too - is also connected to the timer 103 and is controlled by the
15 microprocessor 101. As its name indicates, it is used for determining a trend of the frequency of use of the "last number redialling" function over predetermined successive periods. The output of the trend calculating unit 121 is connected to a first input of a trend comparator unit 123, the second input of which is
20 connected to a trend reference value memory 125. Similarly, a first frequency reference value memory 127 is connected to a second input of the abovementioned first frequency comparator unit 119.

25 The output of the second arithmetic calculating unit 117, too, is connected to one input of a (second) frequency comparator unit 129, the second input of which is connected to a (second) frequency reference value memory 131. The output of the FIFO memory 113 is connected to a subtraction stage 133 which is also
30 connected to the timer 103 and calculates the time difference between the current date and the date of the last speed dialling to the specific call party. The subtraction stage 133 is followed in the circuit by a time difference comparator unit 135,

the second input of which is connected to a time difference reference value memory 137.

5 The comparator units 119, 123, 129 and 135 mentioned, in interaction with their associated reference value memories 125, 127, 131 and 137, are used for determining whether the respective input value (frequency of use, trend value of use and time difference value, respectively) exceeds or drops below a predetermined threshold value, and for outputting an output signal
10 characterizing the result of the comparison. All of them are connected to inputs of a memory control unit 139 which is connected to a text memory (user information memory) 141 and - naturally again under control by the microprocessor 101 - calls up predetermined advisory texts stored in the various memory areas
15 141_i of the text memory 141 in dependence on these respective output signals and displays them on the display unit 107 of the telephone 100.

Thus, for example during the determination of a frequency of use
20 of the "last number redialling" function dropping below a particular reference frequency and/or having a falling trend (and, in particular, naturally, when this function is not used at all), a reference to the advantages of this function is displayed in the display 107. If no connection with the specified call party has
25 been established over a predetermined period (time difference reference value) and/or if the frequency of the establishment of contact with this party drops below a predetermined reference value, a specific reference to the suitability of re-establishing contact with this party (for example an important business
30 partner) is in each case displayed on the display 107.

Similar to what has been described above, time difference, frequency or trend evaluations with respect to the use of other functions of the telephone 100 can

specific advisory texts can be displayed in each case as a result of the evaluation. In the case of a telephone system with hard copy reports, it is also possible to print out the corresponding references and, finally, a text announcement can also be implemented (particularly suitable in the case of a telephone with answering machine function). For the embodiment in a feature telephone outlined in figure 1, the use of calendar periods (days/weeks/months) without referring to a device operating period or real period of use is appropriate. Naturally, this embodiment is also possible in the same way in a cordless telephone or mobile telephone.

Figure 2 shows the embodiment of the invention in another field than that of communications engineering with the example of a car radio/CD changer combination. Here, too, only the components which are of importance in conjunction with the explanation of the invention are shown; for the rest, a conventional device configuration is assumed. The functional components of this arrangement largely correspond to those of the first embodiment and are designated to this extent with reference numbers derived from figure 1 and will not be explained again in the text which follows.

As examples of supplementary functions enhancing the value of use, (a) the "random" function (mixing the titles of a CD in accordance with the principle of randomness) and (b) selection of various CDs from the changer will be picked out here and an evaluation will be described which is simplified as compared with the evaluation modes of the first embodiment. (Due to this fact and due to the circumstances that components having similar functions should also receive similar reference numbers as in figure 1, the reference numbers in figure 2 no longer follow one another without gaps.)

The car radio/CD changer combination 200 has a microprocessor 201, which is also used for controlling the program sequence, a main and program memory 201a, 201b and a

timer 203 and naturally an operating keypad 205 and an alphanumeric display unit 207 in the usual manner and in principle analogously to the feature telephone according to figure 1. A first group of essential elements of the arrangement 200A for carrying out the invention are in this case a counter 209, connected to the operating keypad 205, for counting the operating processes for activating the "random" function, an arithmetic calculating unit 215, which follows the counter 209 and is also connected to the timer 203, for calculating the relative frequency of use of the said function, a frequency comparator unit 219 which is connected to the output of the calculating unit 215 and to the second input of which a frequency reference value memory 227 is connected.

A second group of essential functional components is formed by a FIFO memory 213, which is connected, on the one hand, to the input keypad 205 and, on the other hand, to the timer 203, for registering the last selection process in each case for a particular CD position in the changer part, a subtraction stage 233, connected to the output of the FIFO memory 213 and also to the timer 203, for determining the period which has elapsed since the last corresponding selection process, a time difference comparator unit 235 connected to the output of the subtraction stage 233 and a time difference reference value memory 237 connected to its second input. With regard to the remaining components of memory control unit 239 and text memory 241, reference is made to the above description for figure 1.

Thus, in the arrangement described last, the user of the car radio/CD changer combination 200 is supplied with corresponding references via the display 207 when he has not or very rarely used the "random" function of his device within a predetermined operating period or when he has not selected a particular CD in the changer

for a very long time. The latter reference can provide him with a stimulus for inserting another CD into this compartment which is more to his (possibly changed) taste.

The embodiment of the invention is not restricted to the examples described but is also possible in a multiplicity of modifications for other devices and applications.

FIG. 1 is a perspective view of a device according to the invention, showing a housing 1 with a front face 2 and a rear face 3. A front cover 4 is hinged to the front face 2. A rear cover 5 is hinged to the rear face 3. A display 6 is mounted on the front face 2. A keypad 7 is mounted on the front face 2. A speaker 8 is mounted on the front face 2. A microphone 9 is mounted on the front face 2. A camera 10 is mounted on the front face 2. A light sensor 11 is mounted on the front face 2. A temperature sensor 12 is mounted on the front face 2. A pressure sensor 13 is mounted on the front face 2. A motion sensor 14 is mounted on the front face 2. A proximity sensor 15 is mounted on the front face 2. A biometric sensor 16 is mounted on the front face 2. A communication module 17 is mounted on the rear face 3. A power source 18 is mounted on the rear face 3. A charging port 19 is mounted on the rear face 3. A data port 20 is mounted on the rear face 3. A reset button 21 is mounted on the rear face 3. A volume button 22 is mounted on the rear face 3. A power button 23 is mounted on the rear face 3. A home button 24 is mounted on the rear face 3. A back button 25 is mounted on the rear face 3. A search button 26 is mounted on the rear face 3. A settings button 27 is mounted on the rear face 3. A notifications button 28 is mounted on the rear face 3. A calendar button 29 is mounted on the rear face 3. A contacts button 30 is mounted on the rear face 3. A messages button 31 is mounted on the rear face 3. A browser button 32 is mounted on the rear face 3. A mail button 33 is mounted on the rear face 3. A phone button 34 is mounted on the rear face 3. A camera button 35 is mounted on the rear face 3. A gallery button 36 is mounted on the rear face 3. A music button 37 is mounted on the rear face 3. A video button 38 is mounted on the rear face 3. A games button 39 is mounted on the rear face 3. A social media button 40 is mounted on the rear face 3. A productivity button 41 is mounted on the rear face 3. A health button 42 is mounted on the rear face 3. A security button 43 is mounted on the rear face 3. A utility button 44 is mounted on the rear face 3. A system button 45 is mounted on the rear face 3. A developer button 46 is mounted on the rear face 3. A test button 47 is mounted on the rear face 3. A debug button 48 is mounted on the rear face 3. A log button 49 is mounted on the rear face 3. A clear button 50 is mounted on the rear face 3. A cancel button 51 is mounted on the rear face 3. A confirm button 52 is mounted on the rear face 3. A close button 53 is mounted on the rear face 3. A back button 54 is mounted on the rear face 3. A forward button 55 is mounted on the rear face 3. A search button 56 is mounted on the rear face 3. A filter button 57 is mounted on the rear face 3. A sort button 58 is mounted on the rear face 3. A view button 59 is mounted on the rear face 3. A refresh button 60 is mounted on the rear face 3. A sync button 61 is mounted on the rear face 3. A backup button 62 is mounted on the rear face 3. A restore button 63 is mounted on the rear face 3. A delete button 64 is mounted on the rear face 3. A copy button 65 is mounted on the rear face 3. A paste button 66 is mounted on the rear face 3. A redo button 67 is mounted on the rear face 3. A undo button 68 is mounted on the rear face 3. A zoom in button 69 is mounted on the rear face 3. A zoom out button 70 is mounted on the rear face 3. A rotate button 71 is mounted on the rear face 3. A crop button 72 is mounted on the rear face 3. A crop and rotate button 73 is mounted on the rear face 3. A crop and rotate and zoom button 74 is mounted on the rear face 3. A crop and rotate and zoom and crop button 75 is mounted on the rear face 3. A crop and rotate and zoom and crop and rotate button 76 is mounted on the rear face 3. 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A crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop button 96 is mounted on the rear face 3. A crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate button 97 is mounted on the rear face 3. A crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom button 98 is mounted on the rear face 3. A crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop button 99 is mounted on the rear face 3. A crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate and zoom and crop and rotate button 100 is mounted on the rear face 3.

Patent claims

1. A method for operating an electronic device (100; 200), particularly a telephone terminal, with an input device (105; 205) and a display or output device (107; 207) which exhibits at least one supplementary or selection function which can be activated via the input device, each activation of a predetermined supplementary or selection function being detected, characterized in that
- the result of the detection is subjected to a predetermined evaluation for determining little used supplementary or selection functions,
 - a reference text to the supplementary or selection functions not used or little used is displayed or output in dependence on the result of the evaluation.
2. The method as claimed in claim 1, characterized in that the step of evaluation includes the determination of the frequency of activation of the supplementary or selection function in a predetermined period or operating period.
3. The method as claimed in claim 2, characterized in that the evaluation includes a determination of the trend of the frequency of activation in a predetermined period or operating period.
4. The method as claimed in one of the preceding claims, characterized in that the step of evaluation includes the determination of a period which has elapsed since the last activation of the supplementary or selection function.
5. The method as claimed in one of claims 2 to 4, characterized in that

the step of evaluation includes a comparison of the frequency of activation determined and/or of the trend determined and/or of the period determined, with a predetermined corresponding reference value.

5

6. An electronic device (100; 200), particularly a telephone terminal, with an input device (105; 205) and a display or output device (107; 207) which exhibits at least one supplementary or selection function which can be activated via the input device, in which a supplementary function detection device (103; 203) for detecting each activation of the or a particular supplementary or selection function and an evaluation device (109 to 135; 209 to 235), connected to the output of the supplementary function detection device and to a timer (103; 203), for determining a quantity characterizing the number of activations in a predetermined period and for outputting a corresponding output signal are provided, characterized by

- a user information memory (141; 241) for storing at least one advisory text for the or each supplementary or selection function, the advisory text relating to supplementary or selection functions which are not used or little used,

- a memory control device (139; 239) for addressing the user information memory for outputting the or an advisory text to the or each supplementary or selection function not used or only little used, in dependence on the output signal of the evaluation device via the display device.

7. The device as claimed in claim 6, characterized in that the supplementary function detection device exhibits a counter (109, 111; 209) for detecting the number of activations of the or each supplementary or selection function and an arithmetic calculating unit (115, 117; 215), following the counter and connected to

the timer (103; 203), for

determining the frequency of activation of the supplementary or selection function in a predetermined period.

8. The device as claimed in claim 6 or 7, characterized in that
5 the evaluation device exhibits a memory (113; 213) for registering
the last activation time of the supplementary or selection
function in each case and a subtraction stage (133; 233),
connected to this memory and to the timer (103; 203), for
determining the period which has elapsed since the last
10 activation.

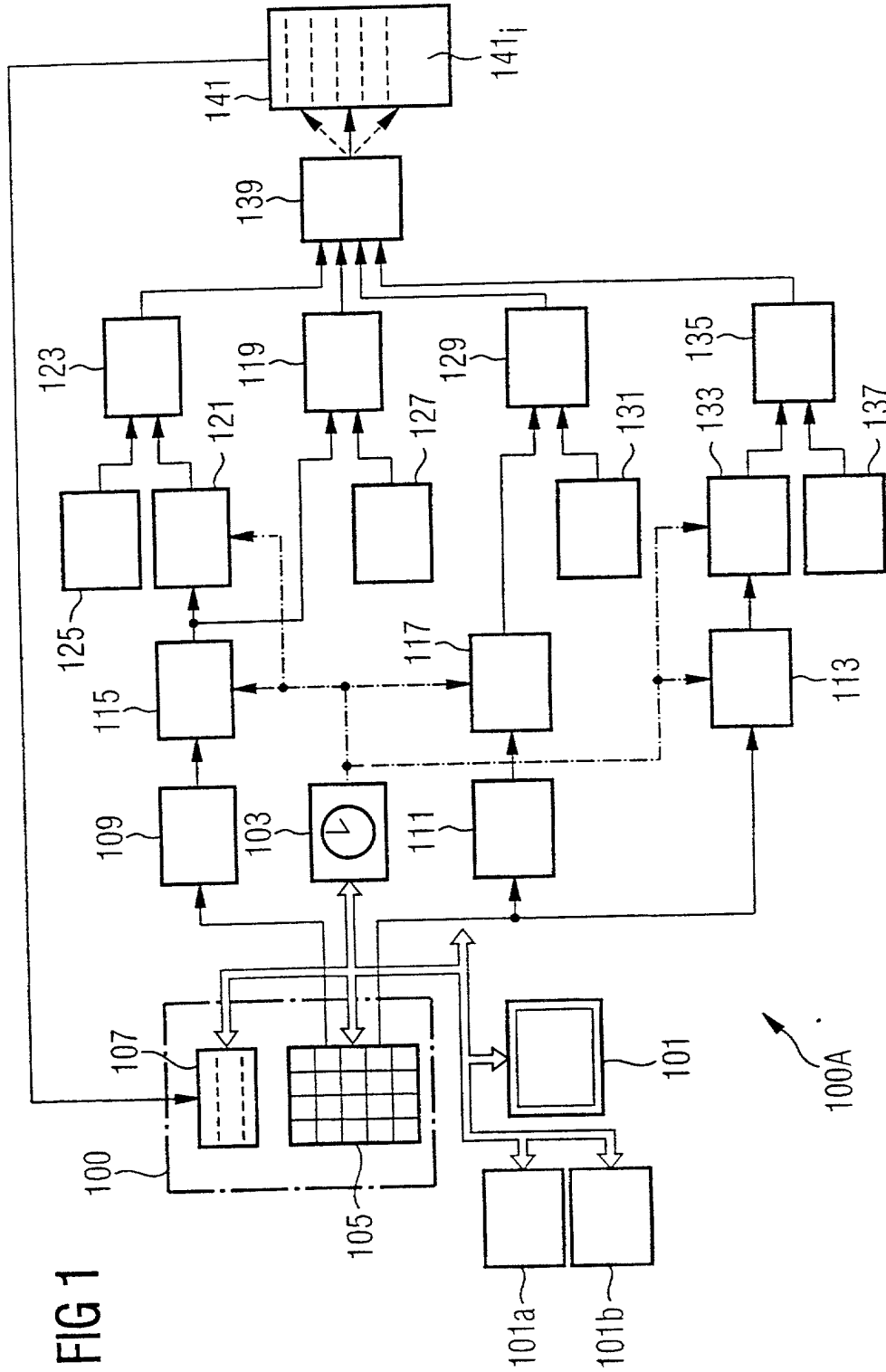
9. The device as claimed in one of claims 6 to 8, characterized
in that the evaluation device exhibits a comparator unit (119,
123, 129, 135; 219, 235), which is connected at its input to a
15 reference value memory (127, 121, 131, 133; 227, 237), for
comparing the quantity relating the number of activations to a
predetermined period and for outputting a corresponding control
signal to the memory control device (139; 239).

Method for operating an electronic device and electronic device

15 Figure 1

[illegible]

FIG 1



2/2

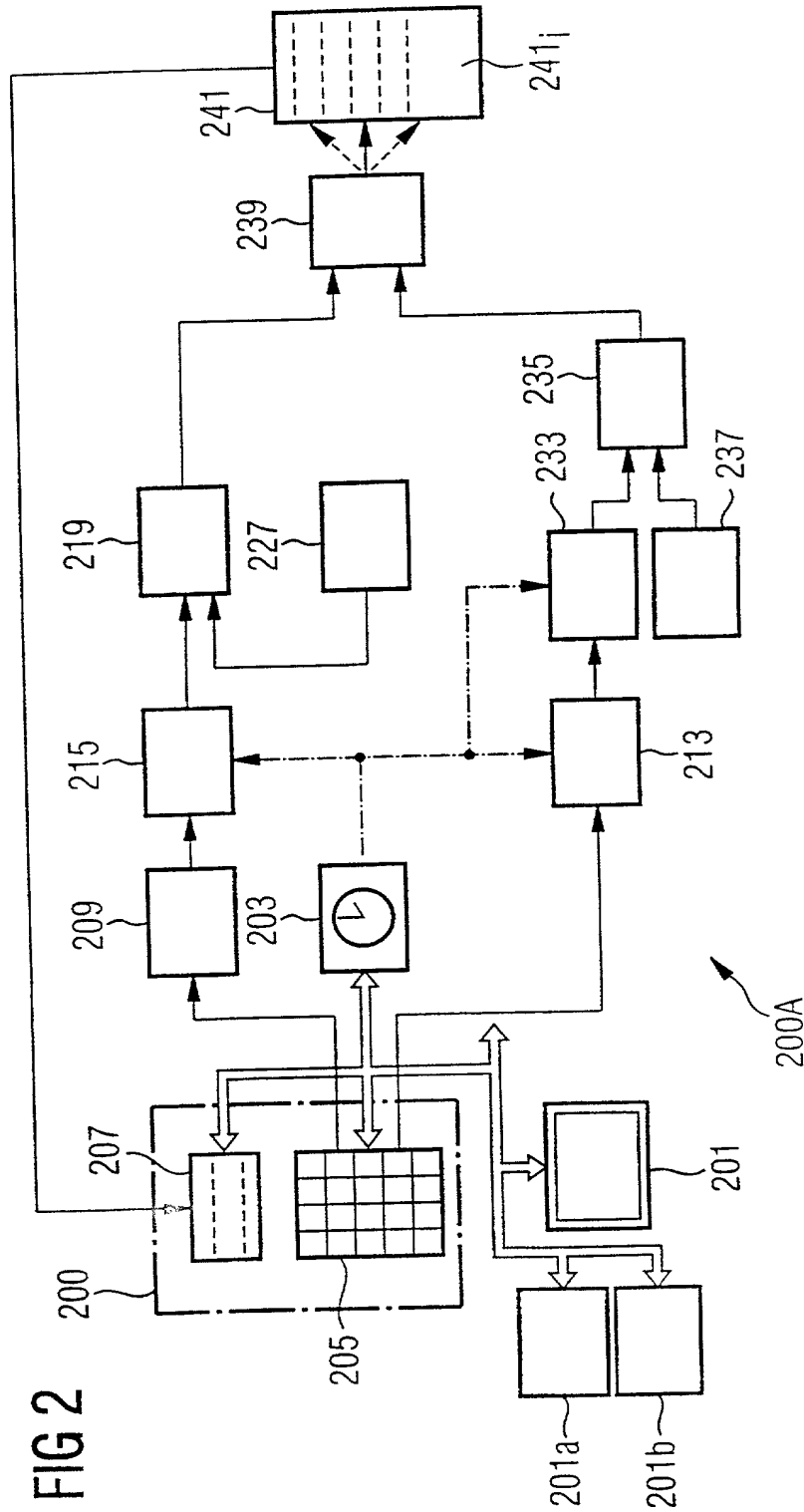


FIG 2

Declaration and Power of Attorney For Patent Application

Erklärung Für Patentanmeldungen Mit Vollmacht

German Language Declaration

Als nachstehend benannter Erfinder erkläre ich hiermit an Eides Statt:

dass mein Wohnsitz, meine Postanschrift, und meine Staatsangehörigkeit den im Nachstehenden nach meinem Namen aufgeführten Angaben entsprechen,

dass ich, nach bestem Wissen der ursprüngliche, erste und alleinige Erfinder (falls nachstehend nur ein Name angegeben ist) oder ein ursprünglicher, erster und Miterfinder (falls nachstehend mehrere Namen aufgeführt sind) des Gegenstandes bin, für den dieser Antrag gestellt wird und für den ein Patent beantragt wird für die Erfindung mit dem Titel:

Verfahren zum Betrieb eines elektronischen Gerätes und elektronisches Gerät

deren Beschreibung

(zutreffendes ankreuzen)

☐ hier beigefügt ist.

☒ am 28.06.2000 als

PCT internationale Anmeldung

PCT Anwendungsnummer PCT/DE00/02105

eingereicht wurde und am _____

abgeändert wurde (falls tatsächlich abgeändert).

Ich bestätige hiermit, dass ich den Inhalt der obigen Patentanmeldung einschliesslich der Ansprüche durchgesehen und verstanden habe, die eventuell durch einen Zusatzantrag wie oben erwähnt abgeändert wurde.

Ich erkenne meine Pflicht zur Offenbarung irgendwelcher Informationen, die für die Prüfung der vorliegenden Anmeldung in Einklang mit Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) von Wichtigkeit sind, an.

Ich beanspruche hiermit ausländische Prioritätsvorteile gemäss Abschnitt 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 119 aller unten angegebenen Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde, und habe auch alle Auslandsanmeldungen für ein Patent oder eine Erfindersurkunde nachstehend gekennzeichnet, die ein Anmeldedatum haben, das vor dem Anmeldedatum der Anmeldung liegt, für die Priorität beansprucht wird.

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled

Method for operating an electronic an electronic device and electronic device.

the specification of which

(check one)

☐ is attached hereto.

☒ was filed on 28.06.2000 as

PCT international application

PCT Application No. PCT/DE00/02105 ✓

and was amended on _____ (if applicable)

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims as amended by any amendment referred to above.

I acknowledge the duty to disclose information which is material to the examination of this application in accordance with Title 37, Code of Federal Regulations, §1.56(a).

I hereby claim foreign priority benefits under Title 35, United States Code, §119 of any foreign application(s) for patent or inventor's certificate listed below and have also identified below any foreign application for patent or inventor's certificate having a filing date before that of the application on which priority is claimed:

German Language Declaration

Prior foreign applications
Priorität beansprucht

Priority Claimed

19929757.6 ✓ DE ✓
(Number) (Country)
(Nummer) (Land)

29.06.1999 ✓
(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☒ ☐
Yes No
Ja Nein

(Number) (Country)
(Nummer) (Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

(Number) (Country)
(Nummer) (Land)

(Day Month Year Filed)
(Tag Monat Jahr eingereicht)

☐ ☐
Yes No
Ja Nein

Ich beanspruche hiermit gemäss Absatz 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 120, den Vorzug aller unten aufgeführten Anmeldungen und falls der Gegenstand aus jedem Anspruch dieser Anmeldung nicht in einer früheren amerikanischen Patentanmeldung laut dem ersten Paragraphen des Absatzes 35 der Zivilprozessordnung der Vereinigten Staaten, Paragraph 122 offenbart ist, erkenne ich gemäss Absatz 37, Bundesgesetzbuch, Paragraph 1.56(a) meine Pflicht zur Offenbarung von Informationen an, die zwischen dem Anmeldedatum der früheren Anmeldung und dem nationalen oder PCT internationalen Anmeldedatum dieser Anmeldung bekannt geworden sind.

I hereby claim the benefit under Title 35, United States Code, §120 of any United States application(s) listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States application in the manner provided by the first paragraph of Title 35, United States Code, §122, I acknowledge the duty to disclose material information as defined in Title 37, Code of Federal Regulations, §1.56(a) which occurred between the filing date of the prior application and the national or PCT international filing date of this application.

PCT/DE00/02105 ✓
(Application Serial No.)
(Anmeldeseriennummer)

28.06.2000 ✓
(Filing Date D, M, Y)
(Anmeldedatum T, M, J)

anhängig
(Status)
(patentiert, anhängig,
aufgegeben)

pending
(Status)
(patented, pending,
abandoned)

(Application Serial No.)
(Anmeldeseriennummer)

(Filing Date D,M,Y)
(Anmeldedatum T, M, J)

(Status)
(patentiert, anhängig,
aufgeben)

(Status)
(patented, pending,
abandoned)

Ich erkläre hiermit, dass alle von mir in der vorliegenden Erklärung gemachten Angaben nach meinem besten Wissen und Gewissen der vollen Wahrheit entsprechen, und dass ich diese eidesstattliche Erklärung in Kenntnis dessen abgebe, dass wissentlich und vorsätzlich falsche Angaben gemäss Paragraph 1001, Absatz 18 der Zivilprozessordnung der Vereinigten Staaten von Amerika mit Geldstrafe belegt und/oder Gefängnis bestraft werden koennen, und dass derartig wissentlich und vorsätzlich falsche Angaben die Gültigkeit der vorliegenden Patentanmeldung oder eines darauf erteilten Patentes gefährden können.

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

German Language Declaration

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POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

And I hereby appoint

Customer No. 21171

Telefongespräche bitte richten an:
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Direct Telephone Calls to: (name and telephone number)

Ext. _____

Postanschrift:

Send Correspondence to:

Staas & Halsey LLP
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or
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Voller Name des einzigen oder ursprünglichen Erfinders:		Full name of sole or first inventor:	
NIKOLAUS SCHALLER		NIKOLAUS SCHALLER	
Unterschrift des Erfinders	Datum	Inventor's signature	Date
<i>N. Nikolaus Schaller</i>	28/Nov/01		
Wohnsitz		Residence	
DEISENHOFEN, DEUTSCHLAND <i>DEX</i>		DEISENHOFEN, GERMANY	
Staatsangehörigkeit		Citizenship	
DE <input checked="" type="checkbox"/>		DE	
Postanschrift		Post Office Address	
BUCHENSTR. 3		BUCHENSTR. 3	
82041 DEISENHOFEN		82041 DEISENHOFEN	
Voller Name des zweiten Miterfinders (falls zutreffend):		Full name of second joint inventor, if any:	
Unterschrift des Erfinders		Second Inventor's signature	
Datum		Date	
Wohnsitz		Residence	
Staatsangehörigkeit		Citizenship	
Postanschrift		Post Office Address	

(Bitte entsprechende Informationen und Unterschriften im Falle von dritten und weiteren Miterfindern angeben).

(Supply similar information and signature for third and subsequent joint inventors).